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| 10/650,451      | 08/27/2003  | Subhas C. Bose Jayappa Veeramma | 011775-013210US     | 7137             |

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EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



**Office Action Summary**

Application N .

10/650,451

Applicant(s)

BOSE JAYAPPA VEERAMMA ET AL.

Examiner

ori nadav

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 4-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/19/04</u> . | 6) <input type="checkbox"/> Other: _____  |



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**DETAILED ACTION*****Election/Restrictions***

Applicant's election with traverse of the embodiment of figures 3-4 and 6 on 6/01/2004 is acknowledged. The traversal is on the ground(s) that the application contains only 5 more dependent claims than that allowed by the basic filing fee, and examining 25 claims is not serious burden on the examiner. This is not found persuasive because examining four separate and distinct inventions requires thorough search and examination and cannot be made without serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claims 4-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected embodiment.

***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 4/19/2004 was considered by the examiner.

***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.



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The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference sign 7(b) and corresponding n+ layer, is not depicted in figures 1, 3-4, 6 and 8. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 1-2 are objected to because of the following informalities: In claim 1, line 1, the phrase "An double-triggered" should read "A double-triggered". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakagawa et al. (5,241,210).

Nakagawa et al. teach in figure 10 and related text a power device, comprising:



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a semiconductor substrate 31 of first conductivity having an upper surface and a lower surface;

an isolation diffusion region 35 of second conductivity provided at a periphery of the substrate and extending from the upper surface to the lower surface of the substrate, the isolation diffusion region having a first surface corresponding to the upper surface of the substrate and a second surface corresponding to the lower surface;

a peripheral junction region 34 of second conductivity formed at least partly within the isolation diffusion region and formed proximate the first surface of the isolation diffusion region, and first and second terminals 36, 37,

wherein the peripheral junction region is provided to compensate the surface depletion of the isolation diffusion region.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being obvious over Nakagawa et al.

Nakagawa et al. teach substantially the entire claimed structure, as applied to claim 1 above, except a peripheral junction region being a P+ region and the isolation diffusion



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region being a P region. Nakagawa et al. teach in figure 2 a peripheral junction region 10 being a P+ region and the isolation diffusion region 7b being a P region. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a peripheral junction region being a P+ region and the isolation diffusion region being a P region in Nakagawa et al.'s device in order to use the device in an application which require this type of conductivity. Note that it is conventional to reverse the polarity of the transistor, of which official notice is taken.

### ***Response to Arguments***

Applicant argues that independent claims 1, 21 and 25 are generic, and requests the examiner to provided specific explanation as to why the independent claims would not be considered to be generic claims.

Independent claims 21 and 25 recite a first shallow junction region which is not recited in independent claim 1 and described only non-elected embodiments of figures 7 and 8. Therefore, independent claims 1, 21 and 25 are not generic.

**Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with th notice published in the Official Gazette, 1096 OG**



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**30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', is positioned above the printed name and title.

O.N.  
7/7/04

ORI NADAV  
PATENT EXAMINER  
TECHNOLOGY CENTER 2800